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THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
of the
TOWNSITE OF FAUQUIER
DISTRICT OF COCHRANE

1966

TOWNSITE OF FAUQUIER * 1966
DISTRICT OF COCHRANE

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Report on a water pollution
survey of the township of
Fauquier, district of Cochrane.

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R E P O R T

on a

WATER POLLUTION SURVEY

of the

TOWNSITE OF FAUQUIER

District of Cochrane

April 1966

Division of Sanitary Engineering

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R E P O R T

THE ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water pollution survey was conducted in the Townsite of Fauquier on September 18, 1965. The purpose of the survey was to locate and record all significant sources of water pollution within the townsite. Such surveys are performed routinely, and upon request, by the Ontario Water Resources Commission as a basis for evaluating all existing and potential sources of pollution. Where sources of pollution are found corrective action is requested by the Commission. When water and/or pollution control works appear desirable or expansions to present facilities are necessary, the Commission has a programme to aid in the construction and financing of these works.

The information received from Mr.J.B. Fraser, Clerk-Treasurer, and the Porcupine Health Unit is gratefully acknowledged.

I GENERAL INFORMATION

The Townsite of Fauquier with an approximate population of 800 is located in the Township of Shackleton and Machin in the District of Cochrane. This community is situated on the east shore of the Groundhog River, eighteen miles northwest of the Town of Smooth Rock Falls on Highway No. 11.

Fauquier is not an industrial site and relies economically on the pulp and paper mills in Kapuskasing and Smooth Rock Falls.

General soil conditions consist of heavy clay with drainage to the Groundhog River and its tributaries.

II WATER USES

(1) Private Water Systems

The Townsite of Fauquier does not have a communal water works. Water for domestic purposes is obtained from privately-owned drilled and dug wells. A sanitary survey on May 17, 1965, by the Porcupine Health Unit reported that, of the 108 well supplies sampled for bacteriological examination, 57 samples or 53 per cent of the well supplies contained coliform organisms.

(2) Recreational

The Groundhog River which flows north through the Townsite of Fauquier is used for such sports as fishing, swimming, and boating.

III WATER POLLUTION

(1) Sanitary Waste Disposal

(a) Existing Conditions - Sanitary wastes from the residences in the community are treated by septic-tank and subsurface tile-bed systems. A number of outdoor private privies are also utilized. The sanitary survey by the Porcupine Health Unit indicated that 82 residences are served by septic tanks and 31 by outdoor privies. Reportedly, 80 per cent of the septic tanks and 36 per cent of the private privies were unsatisfactory. The report also revealed that in many cases the private sewage disposal systems could be

corrected.

Because of the existing heavy clay soil, the septic tank and subsurface tile beds are malfunctioning with septic tank effluent and seepage from the tile fields gaining access to open ditches. Possible contamination of the well supplies is caused by these malfunctioning systems.

Drainage for the townsite is provided by open ditches which flow to the Groundhog River and its tributaries.

(b) Proposed Water Pollution Control Facilities - The Townsite of Fauquier has requested the Commission to construct certain water and sewage works. The Division of Project Development (OWRC) has been authorized to engage a consulting engineer to prepare functional designs on the sewage treatment and water supply requirements of the townsite. The Commission is awaiting a resolution passed by Council indicating the acceptance of the Provincially-owned Scheme.

(2) Refuse Disposal

The refuse disposal site is located on Lot 24, Concession 7 of the Township of Shackleton. It is a burn and cover type of operation and the site does not present a water pollution problem.

(3) Discussion of Sample Analyses

The portion of the town lying to the south of Highway No.11 is drained by a series of open ditches which finally unite into one drainage ditch. The northern half of the townsite also is drained by

open ditches discharging to a drainage ditch. Drainage flows east to a tributary of the Groundhog River. This tributary of the Groundhog River is located approximately one-half mile east of the townsite and flows north to the Groundhog River.

A sample, collected from the drainage ditch located south of Highway No. 11 and upstream from the confluence with the tributary, revealed a 5-Day BOD of 8.4 ppm, which is in excess of the Commission's objective of not greater than 4.0 ppm. The total coliform concentration was also in excess of the Commission's maximum objective of not greater than 2,400 organisms per 100 c.c. Coliform organisms are indicative of fecal pollution.

The sample, collected from the drainage ditch in the northern part of town revealed a 5-Day BOD and total coliform count in excess of the Commission's maximum objectives.

The water sample, collected from the tributary of the Groundhog River upstream from the confluences of the drainage ditches showed that the 5-Day BOD and coliform concentration were within the Commission objectives.

However, the sample collected from the tributary downstream from the confluences with the drainage ditches revealed a total coliform count which greatly exceeded the Commission's maximum objective of not greater than 2,400 coliform organisms per 100 c.c.

As revealed by these results, considerable fecal matter is gaining access to open ditches within the townsite. The fecal matter

probably originates from the malfunctioning septic-tank and sub-surface tile-bed systems.

Bacteriological examination of the tributary water indicated that the water quality has been adversely affected by the fecal matter which is introduced to the tributary via drainage ditches.

Laboratory results of the sample, collected from the Groundhog River at Highway No. 11, showed that the water quality of the river was satisfactory upstream from the tributary.

IV SUMMARY AND CONCLUSIONS

A water pollution survey was carried out in the Townsite of Fauquier on September 18, 1965.

The townsite does not have a communal water works or sewage works. The residences are served by outdoor private privies and septic-tank and subsurface tile-bed systems. According to a sanitary survey by the Porcupine Health Unit, eighty per cent of the septic tank systems were malfunctioning. These malfunctionings have probably caused the contamination of some of the well supplies within the townsite. Fecal matter has also adversely affected the water quality of a tributary of the Groundhog River.

The refuse disposal site was satisfactory from a water pollution point of view at the time of the inspection.

The Corporation of the Township of Shackleton and Machin have submitted an application for sewage and water works projects under the new Provincial Scheme. The Division of Project Development

have been authorized to engage a consulting engineer to prepare functional designs on the sewage treatment and water supply requirements of the Townsite of Fauquier.

The Ontario Water Resources Commission is awaiting a Resolution by Council indicating the acceptance of the procedures outlined in the Provincial Scheme.

As there may be some difficulty in financing both works, the Division of Sanitary Engineering has given priority to the water works project.

V RECOMMENDATIONS

1. The Corporation of the Township of Shackleton and Machin should continue its efforts to have the water works and water pollution control projects realized for the Townsite of Fauquier.

2. If financing of both projects is not feasible, priority should be given to the water works project.

3. A by-law should be passed by Council regulating the construction and repair of existing and future private waste disposal systems if the water pollution control project is delayed.

/elb

Approved by

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Div.of Sanitary Engineering.

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APPENDIX

THE SIGNIFICANCE OF LABORATORY RESULTS

The OWRC objectives for surface waters in Ontario are as follows:

5-Day BOD - not greater than 4 ppm
Total Coliform Organisms - not greater than 2,400
coliforms per 100 c.c.

Phenolic Equivalents

Average - not greater than 2 ppb
Maximum - not greater than 5 ppb

pH - 6.7 to 8.5

A few pertinent maximum concentration limits of contaminants in storm sewers, sewage treatment plant and industrial waste effluents, are listed below. Adequate protection for surface waters, except in specific instances influenced by local conditions, will be obtained if the concentrations and pH range are not exceeded.

5-Day BOD - not greater than 15 ppm
Suspended Solids - not greater than 15 ppm
Phenolic Equivalents - not greater than 20 ppb
Ether Solubles (oil) - not greater than 15 ppm
pH Range - 5.5 to 10.6.

EXPLANATION OF LABORATORY RESULTS

Bacteriological Examinations - The Most Probable

Number Technique is used by the Ontario Department of Health to obtain an approximation of the actual number of coliform organisms present. These organisms are the normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large numbers in sewage and are, in general, relatively few in

number in other stream pollutants.

Biochemical Oxygen Demand (BOD) - The biochemical oxygen demand test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in sewage, sewage effluent, polluted waters, or industrial wastes, by aerobic biochemical action. The time and temperature used are five (5) days and 20°C, respectively.

Solids - The analyses for solids include tests for total, suspended, and dissolved solids. Total solids is a measure of the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature whereas the dissolved solids are a measure of those solids in solution.

TOWNSITE OF FAUQUIER

TABLE I

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>Solids Susp. (ppm)</u>	<u>Diss. (ppm)</u>	<u>MFN* Total Coliform Organisms/100 c.c.</u>	<u>E.coli Per 100 c.c.</u>
GRW-1.4	Trib.of Groundhog R. downstream from con- fluence with drainage ditches.	Sept.18/65	2.0	332	77	255	4,600,000	240,000
GRW-1.4 D	Drainage ditch down- stream from Townsite of Fauquier, north of Highway No. 11.	Sept.18/65	61.0	576	77	499	24,000,000	240,000
GRW-2.2	Trib.of Groundhog R. upstream from con- fluence with drainage ditches.	Sept.18/65	0.8	146	3	143	2,100	23
GRW-2.2 D	Drainage ditch down- stream from Townsite of Fauquier, south of Highway No. 11.	Sept.18/65	8.4	682	102	580	24,000,000	240,000
GR-28.8	Groundhog R. at Highway No. 11.	Sept.18/65	0.7	130	8	122	43	23

* Bacteriological examination performed at the Ontario Department of Health
Regional Laboratory in Timmins, Ontario.